

AMATEUR RADIO



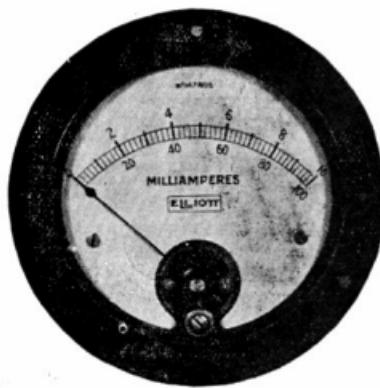
Published in the interests of the Wireless Institute of Australia, Official Organ of all divisions of the W.I.A. and R.A.A.F.W.R.



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AMATEUR RADIO

Published by the Wireless Institute of Aust.. Victorian Division.

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1st FEBRUARY, 1938

INDEX

Editorial	3	Australian and Victorian Q.S.L.	
"CQing" a Pleasure	4	Bureau	16
Break-in and Remote Control	8	Portable	17
Overload Protection	10	Divisional Notes	
Correspondence	12	N.S.W.	18
Beam Tubes	13	Victoria	23
28 and 56 M.C. Notes	15	South Australia	27
		R.A.A.F. Notes	33

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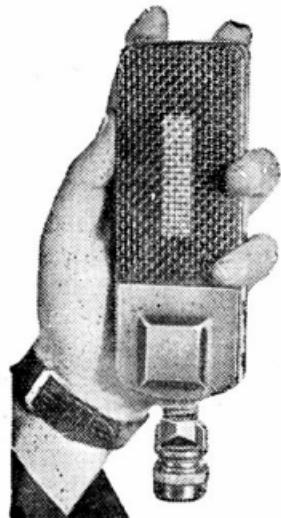
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Page 1

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The Wireless Institute of Australia is lacking in its publicity. That is rather a bold statement and would probably draw blood from some of the Divisions but, nevertheless, we think it is true. The experimenter is not in the public eye today as he was some two, three and more years ago, when it was a Sunday treat to listen to "The Amateurs" on 200 metres. Commercial interests have overshadowed the vast amount of the pioneering work done by the experimenter in Australia. It is well known that the first broadcasts were carried out by amateur stations and, as has been the case right throughout the experimenters' existence, the way has been paved for a public service.

You have only to ask a ham of the 1921-1924 vintage what was thought of wavelengths below 200 metres, or, may we even say, 400 metres. This was the experimenters play ground and long distance communication on the short waves was considered a dream.

It is not so much public recognition that the experimenter deserves but at least to be classed amongst the "pioneers" of radio in Australia. It came as a shock to some of us recently at a commercial interests dinner to listen to the toast to the pioneers. Not one mention was made of the amateur. To those who have studied the history of the Institute and radio in this country this was very underserving.

We therefore repeat that the Institute lacks in its publicity. It should have on record a complete history of its activities and those of its members. It is understood that the Victorian Division is about to set its mind on the matter of an official history and the same consideration is recommended to other Divisions.

1st FEBRUARY, 1938.

EDITORIAL

We are about to be judged by radio interests at the Cairo Convention.

Were it not for the W.I.A. we certainly feel sure that the Australian experimenter would lose some his frequency assignments. The activities of the members are being brought continually before the authorities so that they will see that we are using each and every band available. We are increasing rapidly in number every year and we must preserve our already microscopical allocations out of the vast territory available much of which is taken up by the commercial banging away at its ABC.

Commercial services are naturally very essential but we wonder if some of them serve any other purpose than to clutter up the ether.

Since the depression period the W.I.A. has been very busy trying to make up for lost time and has devoted its energies in important directions, that is looking after the interests of both the members and non-members. Publicity has had to QRX for the time being.

It must be pushed along now before it is too late. In 10 years time the ham will wonder just what happened in the early days of radio in Australia. Full information must be available to him in the form of the Official History.

The Wireless Institute is the first and foremost radio body and started way back about 1910. In 28 years we have covered a lot of ground and if that is not pioneering we would like to know what is! It is History in the true sense of the word and the records should certainly show how we have been gradually cut down from thousands of kilocycles to mere hundreds over that period.

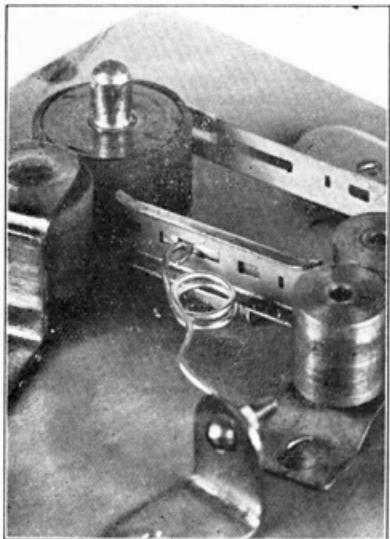
(Continued on page 9.)

Page 3

“CQing” a Pleasure

(By W. M. Moore, VK2HZ.)

It is quite a novel experience to write up your log whilst some gadget calls CQ and makes the next contact for you. Such has been the experience at 2HZ for some months now, and the operator is all for it. From time to time articles have been perused in overseas magazines relative to automatic senders; and with the new regulations came the demise of the gramophone, so it was decided to put the motor to some better use.



The sender to be described is the result of many ideas—those in various magazines, plus a few of the writers. The sender has been in use for over three months now, and has proved invaluable both for general CQ's and for automatic sending during test periods on 56 mc.

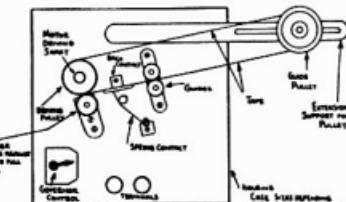
In the recent VK-ZL DX test the sender was used exclusively, and over 80 contacts were made in the senior section without calling CQ; manually, anyway.

In a test of this nature possibly 50 per cent. of the time is spent

calling CQ, and if this operating exertion can be saved the competitor will undoubtedly be fresher after 24 hours' operation. All forms of transmitter checking can naturally be done while the Xmitter is operating, and taken all round the sender is an exceptionally useful piece of station apparatus.

The general idea of the sender can be clearly seen from the photographs. Inside the square box is housed a gramophone motor, in this case of the single spring variety. Three portions of the motor assembly protrude from the box. Firstly, the normal driving shaft; secondly, the winding shaft; and thirdly, the governor control.

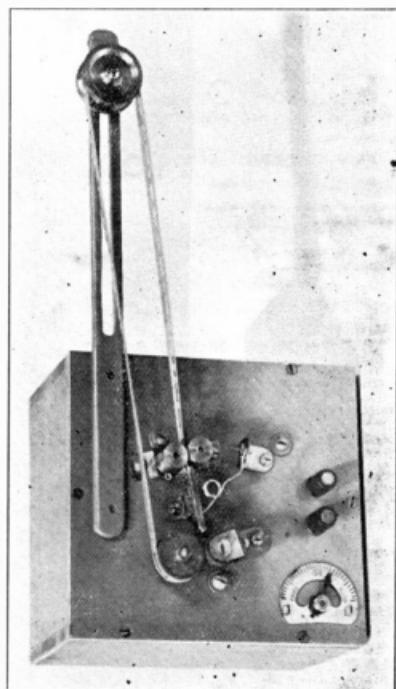
Fitted to driving shaft is a 1 in. dia. pulley, and running against this, and termed the follower, is a smaller pulley $\frac{1}{2}$ in. dia. Both these pulleys are



rubber covered, allowing a greater friction grip on the tape which runs between them. The follower must be pressed tightly against the driver to obtain sufficient grip to draw the tape. The other two pulleys, which are side by side, and to the right of the driver, are only guides. The fifth and final pulley on the extension piece takes up any slack for varying lengths of tape. The tape is cut in the centre, thus forming the Morse characteristics required. This tape is drawn through a back contact guide, and the other contact is made of wire and hits the back contact guide when the perforations come into line. This arrangement can clearly be seen from the close-up photograph of the sender. Wires from the back contact and the spring are brought out to the terminals, which are on the bottom of the photo-

1st FEBRUARY, 1938.

graph. The following is a resume of the main features, and deals with points of constructions. No attempt is made to adhere strictly to sizes of brackets, etc. The governing sizes are mentioned, such as diameters of pulleys, the rest can be well left to the builder, who knows the limitations of the gear available.



Gramophone Motor.

The gramophone motor can be either of the single or double spring types, the double spring variety naturally running for a much longer period.

The speed of the average gramophone can be varied by means of the governor, from 12-16 R.P.M. to approximately 90 R.P.M. top speed. This variation of speed will give wide variations of tape speed, and in this case a Morse speed variable from 9 to 32 words per min. by just adjusting the governor control. This variation of speed is more than enough for all practical purposes, and the motor sending at 9 W.P.M. or about 13 R.P.M. will run continu-

ously for over 15 minutes, and a correspondingly shorter period at 32 W.P.M. Electric motors, of course, could be used, but it is not possible to get such a large variation of speed in most cases, and with synchronous motors any variation is out of the question unless one has access to the local power station. Generally speaking, a single spring motor will do the job, and can be picked up these days for a few shillings. It might be wise to give the motor a trial run, and check the revolutions, and see if they approach the mentioned limits. If not, give the motor assembly a bath in kerosene, taking the cover off the spring case, and fill it with some form of grease. This should ensure smooth running on the slower speeds. The method of mounting the motor can be left to the individual; the motor in this case was mounted in a wooden box, leaving room one end to bring out the governor control. This control can be bent to suit the size of case.

Pulleys.

It is unfortunate that a lathe is necessary to turn and bore the pulleys, as all other work can be done in the vise. It is essential that the bore of both the driver and follower pulleys be concentric with the circumference.

The sizes of the pulleys are as follows:—

Driver, 1" dia., $\frac{3}{8}$ " long; Follower, $\frac{1}{2}$ " dia. and $\frac{5}{8}$ " long.

Guide pulleys, $\frac{1}{2}$ " dia. and $\frac{5}{8}$ " long, and pulley extension $1\frac{1}{4}$ " dia. and $\frac{3}{4}$ " long, with a groove on surface to hold the tape in position. The only pulley that needs to be exactly to above sizes is the driver, which governs the speed of the tape.

The driver and follower pulleys are both rubber covered, as mentioned previously. Red rubber gas tube of suitable size was procured, and slipped over the pulleys, affording a cheap method of covering.

The pulleys will be bored out or drilled to suit the size of the rod to be used as spindles. The driver, of course, being bored on the taper to suit the taper on the motor shaft. This taper, providing a fair fit is obtained, should provide enough friction to drive the pulley.

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Contact Guide.

This is shaped from a rectangular piece of sheet brass bent along the sides, just allowing sufficient clearance for the tape to slip through. A square bracket is soldered to the back for mounting. This back contact can be clearly seen in the close up photo.

Contact Spring.

This spring should be made for preference from piano wire, or can be formed from ordinary tinned copper wire, providing two or more coils are wound in the centre. This spring can also be clearly seen in the photograph.

Pulley Supports.

The follower pulley, which is pressed tightly against the driver, is mounted in a U-shaped piece of brass to which is soldered a square bracket for mounting. This assembly should be fairly rigid, and may have a slotted hole in the bracket to allow adjustment of pressure on the tape.

The guide pulley support consists of a piece of brass with two $\frac{1}{8}$ " rods protruding from it. The spacing between these rods being sufficient that when the pulleys are slipped on there is enough space between the pulley surfaces to allow the tape to slide through. The pulley on the extension arm can be bolted directly to the arm and not allowed to revolve at all. The tape then slipping around the circumference of the pulley.

Tape.

The tape is made from old 9 mm Pathé Film, and is available at a small cost from many home cine. dealers. The perforations for the sprockets on this type of film are in the centre, not two rows on each side, as in the usual cases. These perforations, while not affecting the operation of the tape in any way, are very useful as a standard for the measuring of the dots and dashes. Actually the sprocket holes are not wide enough to allow the spring to hit the back plate.

If half the distance between these sprocket holes is taken as a unit (one dot) it is an easy matter to cut the tape to the required dots and dashes without any measurement by rule, etc.

The following should be observed when cutting tapes:—One dot equals

1st FEBRUARY, 1938.

1 unit (half the space between perforations) 1 dash = 3 units (3 dots), the space between a character is a letter = one unit, the space between the characters in a word = 3 units, and the space between words = 5 units. Adopting this spacing, a three times three CQ takes up 9 ft. of film. However, a call of this magnitude has to be run right through, and the AR can be cut on the end of it. A better method, and the one used at 2HZ, is to use endless tapes. A CQ, CQ, DX de VK2HZ tape can be comfortably fitted, using the 1 ft. extension arm. With an endless tape the sender is run in parallel with the normal key, and when the required number of CQ's have been sent, the governor control on the motor is turned off till it jams the motor, and with the straight key a few more call signs are sent, and then AR. After a little experience it is quite an easy matter to switch off at the right place just after the call sign.

This extension arm, by the way, was made from a 6d. rule, with a slot cut down the middle. Tapes were cut by means of a razor blade, the width of the slots being that of the original sprocket holes. A tape CQ, CQ, DX, de, VK2HZ can be cut in ten minutes, and is a much more flexible proposition than record discs or other means used in automatic senders.

The tape is joined by means of cine-cement, is cut at an angle of about 60° and lapped $\frac{1}{8}$ ", making sure that the joint has been scraped clean of the shiny substance on the film. Considerable difficulty was at first experienced with the joint, but if the joint is well cleaned and left over night with a weight on it no trouble should be experienced.

The sender has been used to key various circuits, and will break 100 mills, providing the spark is not excessive. A small spark has no detrimental effect on the tape, but tends to char the end of the spring contact.

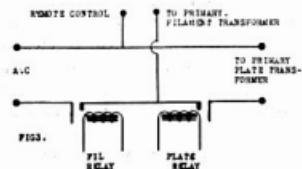
It would be preferable to key with some form of relay and minimise any wear. The rubbing of the spring on the tape has shown no appreciable wear to date, however, as the item is so quickly made, and of such

(Continued on page 9.)

REMOTE CONTROL.

Fig. 3.

Fig. 3 embodies nothing new, but it is worthy of publication if it only assists to refresh our minds that the Filaments **must** be turned on first. It will be seen from the diagram that should the filament relay become disconnected or stick the plate supply cannot be turned on, since the filament relay controls the primary

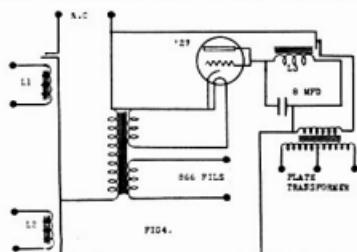


supply for the plate transformer. This little kink is well worth installing, even if you only use common switching in your "rig."

Fig. 4.

Fig. 4 is the circuit of a time delay for switching on Mercury Vapour type tubes. These tubes require the filament warmed up before the H.T. is applied.

To start up, turn on Relay L1. This turns on 866 filaments and the delay tube filament. When the delay tube heats up and draws current the Relay L3 closes and turns on the H.T. supply. When receiving turn on Relay L2. This opens the H.T. transformer primary, but leaves the filaments alight for immediate operation. To stop operation for some time open Relay L1. If by mistake you start keying before the 866 filaments were hot you can do no harm,



as the '27' will not have warmed up, and consequently the H.T. will be off.

The one defect of the system, which has yet to be overcome, is that the '27' takes as long to cool off as it does to warm up, and therefore if the main switch is opened and then closed again within a few seconds the plate power will come on almost

1st FEBRUARY, 1935.

as quickly as the filaments. Once the main switch L1 has been opened it must not be closed again for a period of approximately one minute, otherwise the desired protection will be absent. It is to be remembered, however, that the only switch to touch during QSO's is L2; this switch opens the H.T. primary and permits of instant "come back," as the 866's are always warm.

The Relays L1, L8 and L3 may be our old friend the telephone relay revamped to suit the circuit in which it is being used. Relays L1 and L2 may be operated from a 6-volt battery, and may be placed at a distance of up to 50 yards or more, always provided that the resistance of the wiring in circuit is not greater than the resistance of the relay in use.

(Continued from Page 7.)

small cost, it is not worth considering.

In conclusion, one might say that once the sender has been used it will become an indispensable portion of the station equipment and a true labour saver.

The cost is reasonable, and should not exceed £1, including the cost of machining the pulleys. The film can be bought 1/- for 50 feet, a cost of ½d. per tape approximately. Finally, if anyone is in a quandary on any point, a letter to the QRA of 2HZ will be willingly answered.

(Continued from page 3)

It will be shown in the History how fairly the P.M.G. has treated the experimenter and how sympathetic an attitude has always been adopted in treating over-zealous hamis. Yes, most surely we have to thank this department for a lot. We cannot go into details here and the place to find them is in the Official History of the W.I.A.

One cannot sit down with a pipe and a mill and write a history in one night. It is going to be a year's work. An appeal must be made to every old timer to lend a hand in the compilation in the supplying of details. We therefore earnestly request anyone possessing valuable information and records to send them along to the Divisional HQ pronto.

The world must remember that the Experimenter is the pioneer of radio.

Overload Protection

(By VK4RM.)

The following gadget in use at VK4RM is, as far as I am aware, original, yet useful. I have seen ham rigs which require the oscillator, doubler, buffer, and P.A. stages all to be switched on in order and off in reverse order before keying, so that tubes won't pull excessive current without excitation. One remedy, of course, is to use a method of biasing the buffers and amplifiers to keep the plate current down to a safe value. This is an awkward way of getting over the problem, and I find the simple gadget to be discussed does the job quite well, and doesn't require any extra bias or even circuit alterations. The lamp, L1, is an ordinary 6-volt pilot lamp, and indicates when the oscillator is on. Should anything get out of adjustment with this circuit (oscillator circuit) the lamp will indicate it by glowing brightly up to about 100 mills., or burning out completely if the current is higher, thus proving an effective safety fuse to the oscillator tube and crystal.

The lamp, L2, does similar duty for the buffer, and L3 for the final. If pulling over 75 mills., or, say, 100 mills., two 6-volt lamps could be used in series.

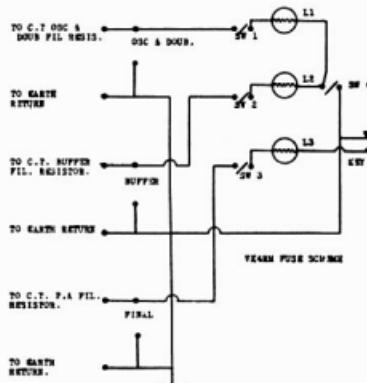
The Doubler does not require such precautions as a rule, because it is biased sufficiently to make it rich in harmonics. In VK4RM's case, the Doubler Ep is fed off from the oscillator supply, and as soon as the oscillator is on, the Doubler is on too. In this case L1 acts as a pilot indicator and fuse for both the oscillator and Doubler, and as the two together pull about 75 mills. one lamp is ample, and there is a margin of 25 mills. for tuning purposes, and should either osc. or doubler Ip rise to, say, 30 mills. above normal the fuse will blow and protect both tubes. A safe rise will be indicated by a slightly increased glow.

Say, for instance, something happened to the doubler bias and plate

current rose to a dangerous value, L1 would blow. The buffer, having no excitation, would start to pull high plate current, but L2 would blow before any damage was done. L3, indicating the plate current of the final, would also blow if the plate current rose to a value dangerous to the tube, and so all stages would be amply protected. If L2 remained alight, also L1, but L3 burned out, the operator would know that the final excitation was disconnected, bias open circuited, or L3 tank off resonance.

Usually one finds these things are happening because the plate of the tube is red hot!

Another useful feature. SW1 is a series switch for the oscillator. SW2 and SW3 perform duty for the buffer and final respectively. These switches are put in the off position when tuning up the rig. When every-



thing is OK the series switches are left on, and there is only one switch to work to put the whole of the rig on the air. One snap, and you're ready to receive. The key, of course, is used to close the final circuit for cw, but for fone work this could be done away with and the circuit hooked up to the main switch.

Where are we going on 5 Metres?

The Editor,
"Amateur Radio."

2/1/38.

Dear OM,

I note with interest your column for "What Do You Think" on 5 MX operations. As a result I have produced some thoughts, which you may or may not think worthy of publication:

First Thought.—The chief object of experiments on 5 MX at the present day is to increase the range over which contact can be established. Many must get fed up of the doings on other bands, where results are more or less certain, and the opportunities for research have been already pretty thoroughly investigated.

The Second Thought.—The chief obstacle to progress on the band at this present time is the lack of real enthusiasm by other than a very few hams, and as a result of the few transmissions there are correspondingly fewer listeners, and so very little chance of DX signals being heard other than by definite schedule.

So what?

Most country hams I have asked about 5 metres give a shy reply, and do not commit themselves, and for several reasons.

The main reason for their non-participation is the fact that its not much fun calling CQ when there is nobody to answer.

The second reason is that most have the idea that the gear is rather difficult to construct, and also may prove expensive; actually, of course

any ham has enough gear to produce a 5 MX signal.

But in reply to the first objection was evolved the

Great Thought.—Ever heard of Hiram Percy Maxim? No. Well, turn to the forgotten chapter in the A.R.R.L. handbook, and then tell me why not a 5 MX A.R.R.L.?

If every country ham interested were to contact the nearest fellow ham, large scale skeds on 5 MX could be run between stations on Sunday mornings, or any other time that could be arranged. Distant stations could be worked by a system of relays, the idea being to stimulate interest in the band by this arrangement.

Several results would be obtained.

Country hams would work with a definite objective—to contact the nearest hams.

It is not unreasonable to suppose that we would soon find that an occasional signal from a more distant town would be heard, and the range thus gradually extended. In short, with more people on, there would be more chance of "something turning up."

So what about it, chaps? Somebody has to make a start, so I will start the ball rolling by asking anyone to write to me, and let me know if they are interested. I will then forward to you details of people interested in your vicinity, and arrange contacts.

My address—Queen's College, Carlton, N.3.

Trusting that, even if these remarks are never printed, they may bear fruit.

I remain yours sincerely,

KEN. M. KELLY,
VK3LL.

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Correspondence

Sydney, N.S.W.,
17/1/38.

The Editor, "Amateur Radio."

Dear Sir,

VK2ABL's comments on my previous discussion on "Phone Personalities" are an interesting addition to the list of depredations committed by pests with the mike complex, and his reference to the North Coast VK2's method of verbal infliction, at least leaves little to the imagination! And the quotation fits so many others, too. One thing I must emphasise. VK2ABL says that it is a "pity the Vigilance Committee is not more severe in checking up on 7 and 14 mc." In this he is not quite correct. Usually, the rulings of the Vigilance Committee, headed by their respective chairmen, do not reach the ears of all and sundry. Offenders who have been censured to the effect of being rendered "hors de combat" for a few months are usually too ashamed to let it be known far and wide that they have been hauled over the coals. All that the gang notices is that so-and-so hasn't been heard for some time. When so-and-so gets back on the air he is usually sadder and wiser, and conducts his station as he could so easily have done in the first place, without calling down the wrath of the Avenging Angels. Assumption that the Vigilance men are hesitant, or show any favouritism, is entirely wrong. No action is taken against offenders who make unwitting mistakes. They are merely told about it and asked to watch the step in future. If they do it again, then the pendulum swings. Another point about these committees. Many hams who are not members of the W.I.A. have the erroneous idea that W.I.A. men are exempt from castigation. This is far from the case. It matters not whether an offender is W.I.A. or not—he is an amateur transmitter, and there is no class distinction so far as the Vigilance Committees are concerned. No amateur is reprimanded unless he thoroughly deserves it. It must be remembered that the Vigilance officers are first and foremost hams themselves, and wielders of a whip secondly. They are men

who by their experience or integrity are well suited to the job, and it is a distasteful job, but one that must be done in the interests of us all. I have recently been perusing the conditions for 14 mc phone as applied to ZL, and my conclusions, after reading that effort, are that the average VK phone exponent surely does not realise just how fortunate he is in living in this democratic country. The ZL has to go through all manner of obstacles before he gets that phone licence, and when he gets it it is "after midnight only." Included in the application for the permission is the necessity for at least three responsible sponsors who will testify in effect that the applicant can speak the King's English. The result? Listen to the few ZL's on 20-metre phone and see how properly they conduct their conversations. "Okey Dokey, Hunkey Dorey, and "I'll bump it over to you" are definitely OUT. 'Tis said in ZL that the reason for the stringent 20-metre phone regulations is because of the bad example set for years by VK's, and there is probably something in that assertion. It is certain that the "circus speiler" kind of phone ham hasn't done the cause any good at all. But this censuring business doesn't apply to phone alone in the matter of Vigilance. C.W. men can err, and frequently do. They get rapped over the knuckles just as much as the phone transgressor. But there is a big difference. One kind the public hears and understands with disgust. Therein lies the rub. Let us see to it that the wrong kind of phone merchant doesn't talk the ham off the air in the end. And now we await with bated breath the rulings of Cairo with its battle of wits, clashes of frequencies, and in it all the ham occasionally getting to the surface of the maelstrom to try and attract attention.

"OLD HOMBRE."

**SUPPORT YOUR
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Beam Tubes

(By VK3XU.)

Recently we decided to make a few changes in the rig, and before doing so we had a look at some of the new tubes on the market. The types 807 and 6L6G appealed, because they were easy to drive and had good characteristics, so that the arrangement at 3XU is now a 53 tube as a Jones exciter, a 6L6G as a frequency multiplier, and push-pull 807's in the final.

The 53 and 6L6G types need no introduction, as they are well known, and much has been written about them. However, a few words on the 807 type would not be amiss.

Rated at 40 watts input—400 volts at 100 milliamperes with 2.5 milliamperes grid current, makes an attractive picture, and as all ratings are conservative, we pictured more than 80 watts input to a pair of these tubes in push-pull. Our picture was correct, and we have run them at 160 watts input without a trace of colour on the plates and with good efficiency.

If the builder of a rig of this kind is desirous of dispensing with the old neutralising arrangements it is essential that proper shielding be used with the 807 type of tube, and care should be exercised in the layout of the stage in which they are used. No difficulty is struck in preventing feedback if, at the outset, the builder bears this in mind.

Using automatic bias, either in the

grid circuit or cathode circuit, or both, is not as satisfactory as the use of fixed bias and after tests, only fixed bias is used here as it stabilises the tubes and prevents any possibility of feedback. In this rig the buffer stage is keyed, and in order to cut off the plate current when the filial is not excited, 120 volts of bias is used on the grids. Now this may seem excessive to some of you who visualised a very straightforward arrangement, but, as mentioned above, the plate voltage used is in excess of the rated figure by 60%, and consequently more grid bias is necessary. However, if you are prepared to use the tubes at rated figures the grid bias can be reduced to 50 volts.

The rated grid current for a pair of 807's in push-pull is 5 milliamperes, and even at high plate voltages, 5 mills. is enough to fully excite the tubes. In fact, if more than 5 mills. is pushed into them, their grids run red hot, and output is reduced.

It is very important that the screen voltages be carefully adjusted so as to prevent the screen current creeping and making the screens run red hot. This lowers the overall efficiency, and impairs the tube as well. Our advice is to use a good make of voltmeter whose resistance is not less than 1,000 ohms per volt, when adjusting grid and screen voltages.

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1st FEBRUARY, 1938.

Amateur Radio

As mentioned above, 100 watts input to a pair of these tubes will not cause them any inconvenience, provided all voltages are carefully adjusted, but cut and by methods should be avoided unless the builder has plenty of cash to spend on tubes.

The 6L6G provides plenty of output on all bands, and its efficiency as a frequency multiplier is excellent. Therefore there is no difficulty in getting 10 watts output from the 6L6G on 10 metres, and that is more than enough to fully drive the 807's to full output.

As an indication of the efficiency of the 807's, the plate current is 10 milliamperes with no load, and rises to 200 mills. with full load, and this with 600 volts on the plates. With 800 volts on the plates, the no load figure is 15 milliamperes, rising to 200 mills. We have not loaded them above 200 mills., although we could.

The manufacturer does not recommend that the plates show colour, and this can be avoided, even at 160 watts input, provided careful adjustment of screen volts, grid volts, and grid current is made. Too much cannot be said for this part of the adjustments if excessive voltages are to be used on the plates.

Finally, the output from the final stage is link coupled to the antenna and on 14 mc, if the builder of this type of rig can get S8 reports from Chile, Argentina and Peru with 100 watts input, then he has duplicated the performance at 3XU, and should be as happy as the author is about the performance of such a cheap type of rig.

Remember — short leads—good screening—careful adjustment of all voltages and plenty of by-pass condensers. That is the secret of success with beam tubes.

The following radiogram has been received:—
To N.Z.A.R.T., from W9FM via W2IXY G2MF, ZL4FO.

All arrangements for a five metre DX test made for period January 15th, to February 27th, 1938 weekends only. U.S.A. stations will listen for first 15 minutes in every hour and transmit for second 15 minutes. United States will listen weekends only between 15 hours and 16 hours G.M.T. for Europe and Africa and between 21 hours and

24 hours G.M.T. for Australia and South America."

F.H.Q. NOTES.

During the period the present Federal Executive has been in office, that is, from March, 1935, 65 applications for W.A.C. Certificates and four W.A.S. Certificates have been approved.

As a matter of interest, the recipients of these awards are set out below under their respective Divisions:—

VK.2—2NY, 2ML, 2LZ (fone), 2DA, 2OJ, 2KZ, 2MY, 2EL, 2DR, 2ZR, 2HV, 2MW, 2HP, 2IG, 2TI, 2JP, 2OW, 2EG, 2TA, 2JT, 2IP, 2JZ (fone), 2JU (fone), 2YC, 2CI, 2QL, 2VN, 2ADE. 28.

VK.3.—3ZF, 3CP, 3YO, 3KR, 3OW, 3TL, 3GC, 3KX (fone), 3HK, 3XP, 3CP (28 MC). 11.

VK.4.—4WH, 4JB, 4EL, 4YL, 4AP, 4UU, 4EI, 4WL, 4GK (28 MC), 4UR, 4HR, 4UL, 4CG, 4RT. 14.

VK.5.—5WG, 5KL, 5QR, 5LY, 5RT, 5KL, 5MD, 5MZ, 5LD, 5SU (fone), 5ZX. 11.

VK.6—Nil.

VK.7.—7AB. 1.

W.A.S. CERTIFICATES.

V.K.2.—Nil.

V.K.3.—3ZC.

V.K.4.—4AW.

VK.5.—5GR (No. 1).

VK.6.—6SA.

VK.7.—Nil.

An Appreciation

Rochester, 19th Jan., 1938.
The Publicity Manager,

"Amateur Radio."

Dear Sir,

Just a word in appreciation of "Amateur Radio" as an advertising medium.

Since inserting a small notice in the Hamads section of September issue, I have been receiving a steady flow of orders from four States of Commonwealth.

This should be gratifying to the Magazine Committee, as well as to advertisers, as shows that besides having a wide circulation, "A.R." is read from cover to cover by amateurs far and wide.

Wishing "The Mag." every success,
Yours fraternally,

EDWARD PERKIN, VK3EP.

28 and 56 M.C. Notes

A. Pritchard VK3CP.

Conditions on 10 meters at present tend towards shorter skip distances, giving many VK2, 4 & 5 stations with exceptional strength, especially VK2UC whose phone is r9 for hours at a time. The skip lengthens at app. 10 a.m., 2.30 p.m. and 10 p.m. respectively for a short time. From the States W6QG with PP 800's (PP 807's on 5 mx) and W2CKO using WE304B with 150 watts to an 8JK flat top beam are sure cw contacts.

W6NAP, 6BJB, 6ONQ, 6NMH, 7BVO, 8JKC—W7EMP, 9BUU all r8 phones—7EMP has 2 flat top beams in series fed between the two, and 9BUU has 2, one above the other, fed at the center of the transposed line, connecting each array.

W9TTB is also r8 under all conditions and is using a diamond with $4\frac{1}{2}$ waves in each leg, 426 feet around G6DH was qso'd here on 15th December at 6.30 p.m., which is the earliest Europe has been heard for several months.

XU3GN was r3 also. PK3BM is often heard about 7.30 p.m., although he is easier to qso around midnight; he has a 35T in the final with 150 watts.

3BQ is re-building his 10 mx transmitter into a 6 ft. rack. The reg. doubler stage from 20 to 10 has an 801 with 800 volts on the plate; a resonance dip from 170 to 25 mills shows wonderful efficiency. (5 mx doubling system, 3CP—A.R. Nov. '37) VK2GU has his Eimac PP 100TH on 5 mx, and an inch arc can be drawn from the feeders—what oh ! !—VK2NO has been heard again during November, at Pwllheli, North Wales, by Mr. C. Mellanby who also reported VK2UC's 4th harmonic at Q4r5 heard 4th September; Mellanby has reported many W 5mx stations and his reports are considered authentic. There are many 5 mx stabilized rigs in VK2—with 2HQ, 2ZN, 2AZ, 2EM, 2IP, 2VV, 2MQ, 2AY, 2UC—2AY has a Taylor T55 in the final. 2UC is re-building, and on 5, the transmitter has 6L6G osc.

1st FEBRUARY, 1938.

6L6G doubler, T20 buffer, T 55 final, an H type beam for 5 is under construction.

The receiver is an 8 tube super with special link coupled 5000 KC intermetates. VK3YP has improved his final with a new Eddystone 40 mmfd split stator condenser across 8 turns 24" diam; the 800 has a resonance dip from 300 to 15 mills, and showing excellent efficiency. VK3CZ has a new 8 tube super nearing completion; the RF and Det stages are designed with 5 mx efficiency in view—6H6 see-saw, combined 2nd det. and noise silencer, complete a super-super. VK4WH using a pair of 201 A's with 12 watts and a rotary beam, is working the dx with good results. VK4PF is heard occasionally — VK4HR has consistently good cw signals from a 210 in the final, feeding a vertical full wave current fed Zepp. The Europeans were OK on 28th Dec. 1937 at 3YP around 10—11 p.m. and many phones were good strength, PAOAZ, G6DH — modulated by 4.6L6 in PP Parallel—G2QT, R7 phones — D4VRR, G2XC, SP1DE, SP1LM, E15F, D3DSR, VU2FV, and VU2CQ, also one W station, W6BOY the long way round. ON4DM, G2PL and SULEC were fb at 3BQ on Jan. 2nd at 11.5 p.m. Tests here with the '57 type tube as a 1st Det.—mixer in the superhet on 5mx show the cathode resistance to be critical and between 1000 and 1500 ohms gave best conversion efficiency when using control grid injection, (osc. coupled through midget condenser). W4LU is one of the strongest on 10 and is situated on Signal Mountain 4000 feet up ! — VK2NY has excellent phone and makes a good contact during the week-ends; his rig has 4 stages 53 xtal on 80—reg. to 20 mx, 6L6 doubler, 801 buffer, T55 final. The modulator has 57, 57 phase inverter, 2a5's class ab, pair of 6L6 class AB2. The Jones all band antenna, 134 feet flat top, with the feeder 11 feet off the center and link coupled to the final draws well on 10.

I would like to thank all those who have been good enough to send me information during the past year—73.

Australian and Victorian QSL Bureau

(R. E. Jones, VK3RJ, Federal QSL Manager.)

OK1YW, Ing. L. Raus, Praha-Modrany 335, Czechoslovakia, wishes to exchange postage stamps with hams in Oceania.

Dan Wilkinson, ZL2AB, was an interesting visitor to the January meeting of the VK3 K.P. meeting, and detailed the ZL regulations regardingfone on 14 mc and other bands. Dan, whose interest in Amateur Radio has never flagged in 16 years, often visits Australia, and on this occasion was accompanied by a recently acquired better half.

Ivor Stafford, VK3XB, eagerly took advantage of school vacations to shake the dust of the Wimmera from his shoes. Ivor visited numerous Melbourne hams prior to spending the balance of his holidays at the parental home at Heathcote.

Jim Hillhouse, VK4ZO, recently spent a few weeks in Melbourne. Jim has fully recovered from his serious accident of 18 months ago, and looks in the pink. He is eagerly awaiting the promised extension of AC mains to Collinsville, Qld.

Another interstate visitor in the person of Ken Matthews, VK5GN, of Malvern, S.A., also made acquaintance with many Melbourne hams during his December visit to Victoria.

Stations are again reminded that owing to the action of the Postal authorities in treating QSL cards as first-class mail, it has become necessary to increase the price for handling outward cards to 9d. per dozen. Australia's postage rates are the highest in the world, and its interpretation and policing of the postal regulations are more stringent than elsewhere.

The annual clean-up (and burn-up) of unclaimed cards takes place during February. Cards for the following are in need of a reprieve:—VK3BL, IL, KA, KY, LN, OX, QM, RE, UF, VK, XG, XK, ZO.

The QSL manager and staff will be on vacation from 14th February to 14th March, and correspondence during that period will suffer a slight delay.

Qras of the following (and an

envelope as well) are required by the Bureau:—VK3BN, EE, IM, KU, PZ, QO, QS, TP, VR, WU, ZU.

Cards for the undermentioned will be forwarded on receipt of stamped envelope to the Bureau, 23 Landale Street, Box Hill:—VK3BJ, BS, CC, CH, CV, DJ, DS, DT, DU, ES, FA, FE, FM, FN, FT, GB, GN, HB, HE, HP, HT, HZ, KG, KO, KP, LH, LI, LS, NB, NG, NI, NP, NT, PC, PN, PH, QR, SZ, TC, TG, TQ, TY, UJ, VM, VY, WH, WR, WW, XA, XU, XZ, YG, YM, ZD, ZF, ZG, ZU, ZW. Ashman Webb.

RADIO DIGEST.

The popularity of the Readers' Digest is well known, and is sought after because it contains a selection of the best articles from the literary world.

We now have the Radio Digest, a publication of "Radio" of California. The basic idea behind this bimonthly periodical is essentially the same as that behind the Readers' Digest—that is, to give the radio man a magazine made up with a selection of the world's most outstanding articles. Number 3 of Radio Digest has just been received by McGill's Agency, of Elizabeth Street, Melbourne, and the following titles are a few of the 25 appearing in the index:—

Sound Recording on Magnetic Tape.

Radio Control of Model Aircraft.

More on the Magic Eye.

Television Transmitters.

Why Sensitivity Testing?

Research in Static.

New Ionosphere Broadcasts.

Bell System Journal.

Q.S.T.

Electronics.

R.C.A. Review.

Service.

Aero Digest.

Radio.

These articles are not merely abstracts, but are published in full. For the man who wants to keep an eye on as many developments as possible without going to the expense of purchasing all the radio publications available, the Radio Digest should appeal as an economical substitute, as it is selling at 2/- per copy. Numbers one and two will also be available shortly for anyone desiring to start a file.

1st FEBRUARY, 1938.

Portable

(By Arthur Pearce, **VK2AHB**)

The Double Bay gang wanted to go portable, and DID when it was heard that a field day had been arranged for 5th December. Having a 6P6, and being rather interested to see how it would perform, an E.C. oscillator utilising it, was wired up.

The receiver built by 2AET consisted of a 6K7 det. and 89 audio, with only a small 60-v. battery as the "B" supply.

At last the fateful day came, and without much trouble—that is, not too much—and 2AET dominating the wheel, in addition to the gear in the back of the car doing acrobatic tricks as we passed over sundry large potholes, etc., our little party set out in the direction of Picton, which is about 50 miles from Sydney. It was on the way up the Razor Back Mountain that poor old "Lizzie" started to foam and froth at the mouth, and it became necessary to stop until her hot-tempered outburst had subsided. Then, to provide a little excitement, we removed the silencer from the exhaust, and, needless to say, rabbits and crows for miles around dropped dead on the spot.

Once there, 2AET spied a couple of trees just far enough apart to hitch a matched-impedance between, and with the skill of his arboreal ancestors started to climb in the darkness.

Fortunately, darkness also hides the trials and tribulations associated with the assembly of a portable station.

Next morning operations commenced, and the first station worked on 40 metres was 3UK, who was also operating portable and putting out a mighty nice signal.

Many fine signals were heard during the day, especially those of 2YY, and some good contacts entered in the log book.

Major shocks of the day were an R9 report from 3UK and when 2AHB got between the vibrator supply and earth.

The input to the little rig was 2.4 watts, and considering that such low power was being used, the results obtained were little short of amazing.

1st FEBRUARY, 1938.

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With 88 Big Pages packed with hundreds of Radio and Electrical items, and with over 500 illustration, a copy of Vealls Big No. 37 Catalogue should be in the hands of every Radio Amateur and Handyman. Your copy is free. Merely enclose a 2d. stamp to defray cost of postage. If your name is not recorded on Vealls special concession list enclose your QSL Card.

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Divisional Notes

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

N.S.W. Division

W. G. Ryan, Secretary, VK2TI,
Box 1734 JJ, G.P.O., Sydney.

Country Zone Officers.

Zone 1 (Far West).—J. Perooz,
VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton,
VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J.
Berry, VK2NY, 54 Bacon Street,
Grafton.

Zone 4 (Hunter River and Coal-
fields).—R. W. Best, VK2TY, 57 Hunter
Street, Newcastle.

Zone 5 (South Coast and South-
West).—R. Ross, VK2IG, 673 David
Street, Albury.

more than once will become the out-right winner of the Cup.

This year the Final will be held during the Second Section of the Sesqui-Centenary Celebrations and it is anticipated that three additional Prizes will be available in the form of Sesqui-Centenary Medallions and these will be presented to the winners of the first three places in the final.

In 1937 the Trophy was won by R. A. Priddle VK2RA after very keen competition and it is anticipated that the 1938 Contest will create even greater enthusiasm and competition and it may be safely stated that the winner of the Trophy in Sesqui-Centenary Year may be proud to say that he is the Best Amateur Telegraphist in the Amateur ranks for that year.

The Wireless Institute of Australia (New South Wales Division) has been again delegated the honor of drawing up the Rules, Organising and Conducting the Competition. This does not mean that the Contest is restricted to Members of the Institute. Every Amateur Operator in New South Wales is eligible, with the exception of those mentioned in Rule 1.

The following are the Rules and Mode of Competition:—

Rule 1.—The Competition is open to every person in New South Wales holding an A.O.C.P. and a current Experimental Licence. Any Amateur holding a Commercial Certificate, i.e., 1st or 2nd Class "Ticket" is debarred from competing. Any Amateur who is employed, or has been employed as a professional Telegraphist is also debarred. (This includes present and ex-P.O., Railway, Naval, Army, Air Force, Mercantile, Marine and Police Operators.

Rule 2.—Automatic Keys and "Mills" of any description barred.

Rule 3.—For the various Preliminary Heats a Judge will be selected from among the Professional Operators

Rule 4.—The Preliminary Heat will

1st FEBRUARY, 1938.

The Trophy takes the form of a handsome Silver Cup and three Replicas and is to be competed for over a period of three years—1938 being the second year of the Competition. The Amateur winning the yearly Contest will hold the Trophy for twelve months and a Replica for all time. The Amateur winning the Competition

Amateur Radio

take place on 15th February, 1938. The Final will be held on Monday 11th April, 1938. Entries will close on 31st January, 1938.

Rule 5.—The Radio Clubs affiliated with the Institute and the Institute itself will conduct the Preliminary Heat in City and Suburbs. The Institute will conduct two sections of the Preliminary: (a) for Members, (b) non-Members. Amateurs are asked to get in touch with the Radio Club in their District or the Institute. Any Amateur who is not a Member of the Institute or a Radio Club should communicate with Honorary Secretary, W.I.A., Box 1734 JJ. G.P.O. Sydney who will make arrangements for his test. Country Amateurs who are in Sydney at time of Final may participate without any Preliminary Test. Rule 6.—First, Second and Third from each Section of the Preliminary Heat will qualify for the Final. Should a very high standard of operating be demonstrated in any heat the Committee reserve the right to increase the number of entrants eligible for the Final.

Before a Radio Club is given the right to organise a Section of the Preliminary Heat it must have at least six entrants therein.

Rule 7.—The Senior Radio Inspector or his nominee will be the sole Judge at the Final.

Rule 8.—The Operating and Receiving Test will take the following form:—

RECEIVE at the rate of 20 words per minute, two messages—each of one minutes duration—as per P.M.G.s Handbook. Press for a period of three minutes. Marks will be awarded for correctness, Legibility and Setting Out.

TRANSMIT at the rate of 20 words per minute two messages—each of one minutes duration—and three minutes press. Marks to be awarded for Formation, Spacing, Freedom from Errors and Breaks.

Rule 9.—Judges decisions in all cases to be final and binding.

N.S.W. DIVISION NOTES.

Activity has been rather restricted of late, as a result of the holiday season, coupled with poor DX conditions. The lower frequency bands are well filled with QRN, 28 mc appears to be dead most of the time, and on 14 mc stations are trying

1st FEBRUARY, 1938.

hard to land the little DX that is coming through, so it is not an easy matter to have a QSO at times. Some of the locals have been heard on 1.75 mc getting ready for the I.R.E. Trophy Contest, so it looks as if this contest is arousing more interest than in former years.

The same may be said for the W.T.S. Crawford Trophy, which is being competed for this year for the second time. Entries so far are in advance of last year, and it is known that many are taking it very seriously, and getting plenty of practice, so the competition promises to be very keen. This year's rules give the country hams an equal opportunity of participating with the city men, and in view of the announcement of the Department of Railways that it is issuing concession tickets (return journey for single fare) to all competitors and amateurs visiting the 14th Annual Convention, we should have much better representation of country hams than usual. The concessions are available to all amateurs, and may be obtained through the Hon. Secretary of the Division.

At the General Meeting held on 16th December an address was given by Mr. C. Gittoes, of Ducon Condenser Pty. Ltd., the subject being "Condensers—Paper, Mica and Electrolytic." Mr. Gittoes described their manufacture, illustrating with condenser units at various stages. He also pointed out the types of losses and their relation to working temperature, concluding with some figures showing the rapid decrease in the life of a condenser when subjected to voltages beyond its rating. The subject was very well handled by Mr. Gittoes, and those present learned much of the "how" and "why" of condenser operation.

The National Field Day was well supported, several stations being on the air. Conditions, however, seemed very dead, and few DX contacts were made. The only scores (approximate) known are:—2LR, 190; 2HZ, 2PN, 170; 2RA, 120. 2LR had contacts in Africa, Asia, Oceania and North America. The ops. at 2HZ got a thorough "ducking" in the storm on the Saturday afternoon, whilst 2RA and party, at Mt. Tomah (4,000 ft.) were in the clouds and rain all the time, and

Amateur Radio

found that it was safer not to touch anything, even with the power off. In spite of the difficulties, all the participants enjoyed the outing, and are looking forward to next time.

Next month's All-Band CW Contest is being well supported in the Division, and on any evening the air is full of "please take test msg," etc.

Station Report. — 2AFJ, using break-in with fixed bias on 807, mainly interested in ragchews, but works some DX, including QA4J in the Junior VK-ZL.

ZONE 2 NOTES.

VK2HV. — Built up the 6L6G amplifier, and is having great phone QSO's on 20 metres. R.F. line up is 6L6G Osc. 7 mc 46 doubler, 14 mc and single 2IO final. Harry is still twisting the old Beam, and reports great results. Recent DX on phone includes KA, J, PK, W, OA, and VS7. The receiver is 7 valve SSS.

VK2TV. — Bob is certainly a great antenna experimenter, and it is his proud boast that if there is a more efficient antenna 2TV will have it. HI, 47 co on 3.5 mc, 53 FD, 53 FD, and T20 final make a very nice sig, and 37 countries on 14 mc have been contacted using this rig. Receiver here is also 7 valves.

VK2ZP has been putting a big bottle to work in the old Hartley; main interest is burning up pencils with RF from the feeders at present, although he is seriously thinking of using the 4242A as a P.A. in a two-tube Crystal rig. The receiver is an E.C. two-tube, and is the goods. Arthur has given up flying after his accident, and seems to have settled down to **Radio**.

VK2GM is a great asset to Zone 2, and is responsible for the return to action in Inverell. George has the finest super seen or heard around these parts, and has no trouble in hearing everything that transmits. He has 60 countries to his credit, and all have been worked in the last six months with 12 watts input. A triode connected 2A5 is the final, and it seems plenty big enough to put 2GM's signals where he wants 'em.

VK2ON is QRL with Uni. studies at present, and has not been on the air since June. However, Lin. expects to be on again some time in the New Year. Reports quite favourable results from voice controlled carrier system, and finds a 45 OK to series

modulate his 12 watts input to the final, a single 46. The receiver is a four-valve superhet, antenna S.W.F. Hertz, and 80, 40 and 20 metres the main bands used.

VK2JC also uses series modulation, and finds a 6L6 in the final OK for 30 metres. The receiver is an eight-valve SSS. Having two 70-foot sticks of sheet iron constructed, and expects to have them erected about Xmas time. Power is at present derived from a rotary converter, although AC is expected in Narrabri early in the New Year.

VK2AFS has been trying 5 metres at Moree, but reports results poor, as the nearest 5-metre station is 160 miles away. Bob has been working his share of DX on 40 and 20, and finds a 45 with 18 watts input good enough to work W's, K6's, etc. The modulation is series and P1 2A3's do the trick. The antenna is a Zepp, the receiver a 7-valve doped commercial, and the hobby? Radio!

VK2ZX is QRL with work, and it is not likely that Ted will be on for some time. His QRA at present is quite in itself sufficient to keep him off the air, and unless he swings his antenna between a couple of pubs the chances of erecting a sky-wire seem pretty remote.

Poor conditions have prevailed during the S.A.R.R.L. Contest, and comparatively few African signals have been heard. VK2DG seems to have had a few QSO's, but otherwise VK2 scores are low.

VK2EO is heard on the air at all hours of the day and night, and works anything he hears. When last heard of his tally was 107 countries.

VK2WH should be on the air before long at his new address.

VK2FT has been experimenting with regenerative RF in his TRF receiver with good results. Also gets good reports from ZL with indoor transmitting aerial.

VK2QL now in the country, and working some good DX with low power. Recently made WAC in five hours.

ZONE 5 NOTES.

(By VK2IG.)

The chaps in this zone and hams generally will be very sorry to learn of the passing of 2YW's father at Wagga and extend to Doug and Jess their

1st FEBRUARY, 1938.

Amateur Radio

the following day bang went his pet 6L6G. Well om that's sure doing things properly !!

2AID seems to be doing nothing in fine style but has a pair of nice sticks ready for the boys to put up Hi! Hi!

2AEO. Perhaps he will put em up for AID as he says a windy day is the time to do it. He has tried it with marked success—yep for the wind !

2AFF has been conspicuous by his absence off the air but has the "get together" spirit and moved his qra to Thorne Street near 2AEO.

2AEO has rebuilt but still putting the finishing touches on it. We seem to be always doing that here Pol ob!!

2BW paid a flying visit to the old home town. Says no more radio until finished at the Uni. Waggaites to note that 20 mx will be OK for some time now Hi!

2TH also paid a short visit and said that there is at least one decent shack in Sydney. Where is it om, at a brewery? Hi!

2AP is now residing in Albury so now for some more fone qrm. Welcome Arthur Ob, anyway.

Some dope on some of our DX contacts here.

AC4YN is with the British Political Mission To Lhasa in Tibet as is operated by several operators. At first it was operated by Lieuts E. Y. Nepean and S. J. Dagg and Mr. R. N. Fox. The two former returned to India and for some time the station was operated only by Mr. Fox who is ex VU2DR. It was operating mainly from high peaks and when qsod here was at 11,000 feet. The Xmitter is a PP Colpitts with 50 watts input using a half wave zepp antenna. They have now got two more ops on hand and is again showing up here with better signs and legibility.

VS4JS is operated by Mr. S. L. Kong at Jesselton, British Borneo. He is only using a single 6L6 with about 16 watts input. The rx being a three tube TRF job.

The Qra's of the following may be useful. 17EY is Addis Ababa to be qsld via IIIY. via bureau.

VQ3TOM at Moshi, Tanganyika.

LAKEMBA RADIO CLUB—VK2LR. (By 2DL.)

The occasion of the National Field Day conducted by the W.I.A. on 4th and 5th December proved highly successful as far as Lakemba Club's

camp was concerned. The actual point score did not nearly come up to the expectations of members, but everybody present had a very enjoyable week-end. Altogether there were 22 Club members at the camping site at Macquarie Fields, which was situated in an ideal position near the river. Three transmitters and three receivers were used, with three operators each listening on a different band. Any of the transmitters could be put into operation at a moment's notice by throwing over a couple of switches. A single genemotor supplied the high tension power for the transmitters. Conditions generally did not appear to be very good, especially on the Saturday, when a heavy thunderstorm left behind a barrage of static.

Each operator was allotted a two-hour shift, after which he could enjoy himself as he wished. There were four tents altogether, with one big tent housing the radio apparatus. Those who were trying to get some sleep in the sleeping quarters were badly QRMED every time the genemotor was switched on, as it made quite a noise when starting up, not to speak of the noise created when the operator on duty hooked up with a DX station. No doubt everyone will be looking forward to the next Field Day camp.

WAVERLEY RADIO CLUB.

The half-yearly election of officers, held in November, resulted in the following officers being elected unopposed:—

President, Mr. G. Wells; Vice-President, Mr. Lusby (2WN); Secretary, Mr. H. Garland; Treasurer, Mr. A. West; Assistant Treasurer, Mr. Johnson (2AFZ); Publicity Officer and W.I.A. Delegate, Mr. J. Howes (2ABS).

The Technical Committee, directed by our President, Mr. G. Wells, has started work on the new Club transmitter, which promises to be somewhat beyond the usual run of "Ham rigs." The crystal oscillator stage, using a type 6L6G tube, will be temperature controlled in order to maintain a very high degree of frequency stability, and a special type of crystal holder has been designed by Mr. Wells, consisting of a massive brass casting weighing about 7lb., in which a heating element will be in-

stalled to maintain the temperature of the block at about 150° F. To further stabilise the temperature, a special type of heating element will be employed, wound with wire whose resistance varies greatly with changes in temperature, and this element will form one arm of a Wheatstone Bridge arrangement, so that any change of temperature within the crystal holder will unbalance the Bridge in such a way as to increase the current through the heating element, thus maintaining temperature equilibrium. Incidentally, the crystal oscillator stage will run continuously (until the tube needs renewing), thus ensuring freedom from temperature changes. By using a suitable crystal, it is hoped that 2BV will serve as a "marker station" to accurately indicate the edge of a band, which may prevent the automatic widening of the bands so noticeable in VK during a contest!

Incidentally, 1938 will be the 20th year of existence of Waverley Club, the oldest radio club in Australia. (The Wireless Institute in Victoria was formed in 1910.—Ed.)

2AFG should be excommunicated from the Club—is tooling about the countryside on his new motor-bike while cobwebs collect on the rig. Wait until the bike goes bung, Jack, you'll wish you had stuck to Ham Radio!

2AHJ is getting all "fone minded" now that his six months' CW penance is nearly up. Has manufactured a nifty-looking ear tickler in the shape of a Reiss microphone, and we suggest that he also manufacture a few dozen wavetraps for the local B.C. listeners—wot sa, George?

2AFZ trains the junior Ops. the right way. Young Bobby, aged 4, can call CQ with the greatest of ease, and his OM says there will be another call sign in the family before long. Has been on 5 metres lately, but thinks will have to learn the Welsh language before doing much good on that band!

2FJ still works 'em on 20 metres, and also says has received a listener's report from ZL on 5 metres—that's the stuff, Jack.

2EG inadvertently mentioned that he is building up a modulator, thus letting the feline out of the sack properly. Thus another champion

1st FEBRUARY, 1938.

of the arcing key sells his birthright for a mess of sidebands—shame on you, Dev!

2AHB still bagging a quantity of DX on 20 and 10. Went with 2AET to Picton on recent Field Day, and had some fun with a 6P6 osc. and 2 watts input from vibrator power supply.

2ABS still escaping cannibals in the wilds of Artarmon, and has very nearly made up his mind to buy an xtal mike, providing the next State Lottery results are as expected.

Victorian Division

VICTORIAN COUNCIL NOTES.

At the Council Meeting held January 11th, 1938 the main business was the appointment of a delegate to the forthcoming Federal Convention and also a discussion of items which we wish to have placed on the agenda for this Convention. Mr. V. Marshall VK3UK was appointed as delegate

As a number of members had felt that the sectional meetings held at present did not cater for the hams interested in short wave phone, it was decided to form a new short-wave phone section. Meetings of this section will probably be held on the first Wednesday of each month.

Accounts amounting to £39/6/3 were passed for payment.

KEY SECTION NOTES. (By VK3HK.)

The meetings of this section continue to be well attended; keep it up, gang. A new system of lecturettes was started, where six members are to be selected at each meeting to give short talks on radio topics to be selected. The idea was received with enthusiasm, also the auction sale of junk was very keenly contested, and is a very popular attraction of our meetings, even rivalling the much coveted QSLs. And now here's the dope from the boys.

3OC.—Ray paid 1/3 for a 53 wid 2 pins broken off the base.

3RJ.—Went home to look for a loose coupler as an old bath-heater to sell him, hi!

3IW.—Has developed a nasty habit of blowing final toobs as endeavouring to recover fm financial strain of Xmas fer a comeback (ask

3OC to make u an offer fer toobs, hi!).

3YP.—Going to Cairns (Q.) so rig wb; be silent fer abt 2 mths.

3BQ.—Still without effective ant, says nbg, but making up fer it by remounting tx and using new freq. meter.

3WB and 3CZ.—Also rebuilding new supers based on those of 3CP and 3YP.

3TU.—Will be on 28 mc and 14 mc vy sz after sum inactivity.

3PW.—Still sqing on 14 mc, but little to show fer it.

3ZC.—Keeping a couple of skeds es wkg a lil dx in between times.

3ZY.—On 7 mc fone, says wl wk fone or cw.

3KQ.—Keeping fb skeds wid 5JG on 7 mc fone, another gud cw man gone wrong.

3FR.—Still plugging along on 7 mc, but trying hard to get rig to go on 56 mc.

3EX.—Re-building, single 6A6 Jones link coupled to 210 P.A. on 3.5, 7 or 14 mc, wl wk anyone.

3RX.—Attended an Institute dinner in Dec. when in Adelaide, also called on 5KO (ex-3WL), and inspected the P.M.G. rxng stn at Somerton, near Glenelg. 5KO demonstrated the superiority of inverted V receiving ant. as against doublet or long inverted L. The V gave an R4 sig. where the others gave nil at all, and this was an HRO.

3ZD.—New Ham. Ron has 45W. to 245. Says fb game this, wkd K6 and K6 on 7 mc.

3UM.—New Ham, on 7 mc 15W. to 6L6 C.O., 6L6 P.A., wkd W fer 12th QSO.

3ZU.—New Ham, on 7 mc 25 wts. to 245 C.O., 2 245's P.P. dblr and 210 P.A., wkd K6 es VR.

3TF.—New Ham; has 10W. to 6A6 C.O., proposes to use 6L6g as doubler.

UHF SECTION NOTES.

(By 3JO.)

Since the time of writing these notes for the last issue, two meetings—December and January—have been held, and, at both of these, we have been pleased to welcome some newcomers. This is a sure indication of the increasing popularity of the UHF's.

Once again we have to record a discussion about our friend the fre-

quency meter. This time we have had a suggestion from one of our technical advisers, that instead of constructing an oscillating frequency meter, with all its attendant difficulties of frequency stability, it would be preferable to construct something along the lines of a V.T. voltmeter, where only the tuned circuit is responsible for the frequency. This idea is being investigated, and the present arrangement leaves the job in the hands of those members who are also members of the T.D.S.

We have nothing further to record about the U.H.F. transmitter for 3WI beyond that various members are experimenting with 40-mtr crystals, 6L6's, etc., and results can be expected soon.

The Field Day suggested for 23rd January has been postponed till 27th February, and it is expected that the following stations will be taking part:—

3OT, Mt. Tarrangower.
3OF, Foster.
3DH, Mt. Macedon.
3VH-JO, You Yangs.
3UK, Colac.
3HZ, Warragul.
3RS, Shepparton.
3HX, Charlton.
2DN, Deniliquin.

Stations in other States are also asked to keep a look out for anything that might come through. This time we intend to try without any governing regulations, but to facilitate working, all stations are requested to be on the job as early as possible and to make all calls and contacts as brief and concise as tests, etc., will allow. Tests and experiments with various types of antennae will comprise most of the work to be attempted.

On 23rd January, 3VH-JO will take their portable gear to Mt. Macedon, and in addition to tests with city stations schedules have been arranged with 2DN.

Some time ago it was suggested that steps be taken to stabilise our transmitters, and now it seems these suggestions are materialising, as we now have 3LG, 3RK, and 3JO, with mopa and others, are threatening to use controlled transmitters shortly. The controlled transmitter is easily recognised; even with the R.C.I.F. superhet the stability of carrier and quality of modulation is readily

Amateur Radio

apparent. With our transmitter stabilised, our receivers can be made more sensitive, and our antennae more effective.

Suggestions for the latter were discussed at the January meeting, and, as these appear to be along similar lines to those mentioned by Mr. Love in his letter of last issue, we extend an invitation to him to attend our next meeting on 15th February to discuss the matter and arrange for the co-operation we both deem so necessary.

Our Chairman, 3OH, has his portable gear installed in his car, and can now select his location at will. Of the reasons for his desiring a location other than home, we consider the menace of a certain super-regen receiver the most likely!!

SHORT WAVE GROUP NOTES.

O. E. Davies.

The Group held two very well attended meetings during December. That held on the 22nd of the month was noted for the Xmas Spirit present, all those who were able to

attend had, I am sure, a very enjoyable evening.

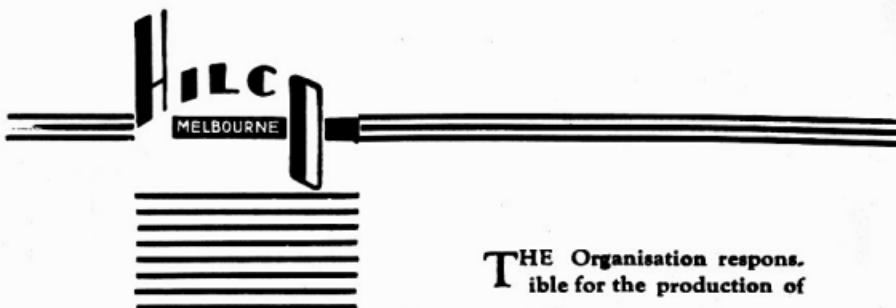
It has been decided to recommence the series of visits to places of general interest. These visits have been, as you well know, one of the very fine attractions of the Short Wave Group for many years.

In recommencing these visits we have decided to start off with the Studios and Station of 3DB. Unfortunately the visit takes place before this appears in print, but, however YOU need not miss the next fine outing. It is at present hoped that the second visit will be to the P.M.G.'s. Lab. on Wednesday 23rd, February. Should, for any reason, this visit have to be postponed; another place of interest will be visited in lieu of the Lab.

As these visits are listed for the fourth Wednesday in the month, the Group will now only meet on the Second Wed. The visit taking the place of the other meeting each month.

Herb. Stevens still M.O.P.A. on 5. Trying Xtal also.

Vic. Leonard, Ron Chard, Ron Higginbotham & Co. all swotting for the A.O.P.C.



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Bertie Berdikin not seen for a month so must be trying more antennae.

George Budden also absent for some time. Wasamarre George.

Alan Anderson now looks at the works through a 913.

COUNTRY SECTION NOTES. (VK3UK).

We can report excellent progress for the month in the matter of placing the new section on a sound footing. The weekly Broadcast from 3WI commenced on 16/1/38 and from the reports received so far was copied from all parts of the State. It was significant that the first Broadcast should contain matter of such great importance to all members and is a perfect illustration, if one were needed of the value of this weekly News Bulletin for advising members of current doings in the Institute. For the benefit of those who did not see the details of the Broadcast times in last months Mag I will repeat them. Note the frequency alteration which will take effect from 6/2/38. 3WI will send out the B/C on 3685 KC at 0945 hours at approximately 16/18 wpm and on 7140 kc at 1030 hours at about the same speed. It will be repeated on 3685 KC at 1045 hours at 12 wpm for the benefit of the new Hams and on 3770 KC from 3EP Rochester on phone at 1100 hours. I cannot always guarantee this 'super' service but while it is possible to do so the above schedule will be maintained as the Council wants this Broadcast to be the maximum possible value to the Country members.

VK3KR has undertaken the launching of the Northern Section and I am sure you fellows must feel that no better man could have been chosen to make a really good job of the organisation. The other two sections, Eastern and Western have not yet advised me of their Representatives but I hope to have them by next issue.

South Australian Division

(By VK5KL.)

Now the holidays are over, and those who were sensible have had a spell from ham radio are returning to the air, more activity should be noticed on most bands. Members visited the Model Aeroplane Club rooms on Wednesday, 12th January, and Mr. Sievers, VK3CB and wife were present. A new call on the air is VK5DW, operated by Frank Wretord, 34 Myall Avenue, Kensington. Rig being used is a single 6L6 as a Xtal oscillator and doubler to forty metres. The results of the all-band cw test are to hand after much waiting, the scores being in this State VK5KL 1,235, and VK5JT 1,135. The convention agenda will soon have to be drawn up, so chaps are asked to have their items ready so that on the night there will not be any delay in thinking out the next to put on the agenda paper.

This year is the peak of the 11-year sun spot cycle, and according to well-versed critics the best time for ultra high frequencies. The 5-metre band in this State is livening up again, but there is plenty of room for some serious experimental work and room for hundreds of stations, yet the same few are there year after year. How about it, chaps? You never know, you may win the International 5-Metre Contest.

The writer has been absent from the air for a month on holidays to forget all radio, hence the notes are small in proportion this month.

5KL.

VK5 COUNTRY NOTES.

(By VK5PN.)

Under the new zoning scheme the three zone officers will contribute news of activities in their respective zones for this column. The zone officers are VK5GW (Barker zone), VK5WG (Grey zone), and VK5RE

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(Wakefield zone). As country members representative on Council, I shall jot down notes of general interest to country members.

Two applications for membership were received from country amateurs at the January Council meeting. They were from Mr. C. A. Ferguson (VK5CJ), of Mt. Gambier, and Mr. T. Laidler (VK5TL), of Ceduna. Mr. Ferguson is in Barker zone and Mr. Laidler is in Grey zone.

I have not yet received notes of "doings" in Barker zone from the zone officer, but George has been very busy lately settling down in a house of his own, and any of you chaps who have experienced a change of Q.R.A. will understand and make allowances. George has recently set up in business in Naracoorte, and, of course, we all wish him great success.

5PB and 5XR should soon be heard again.

I understand 5JK has found pressure of work so great that he has decided not to renew his licence at present.

5YL is re-building. The new transmitter will be on an aluminium chassis, and will be crystal-controlled. It will be noticed in the Zone Notes which follow that our Wakefield zone officer is a man of real initiative. When he is short of news from his own district he promptly goes farther afield! hi!!

GREY ZONE.

(By VK5WG.)

Conditions on all bands have been rather noisy during December, but some fine DX can be worked on 20 MX during early hours a.m.

Good hunting can be had on 10 MX, locals 2GU and 2LZ at R.MAX and W. fones at R7-8.

Now for some dope about the boys.

5FB.—Frank is now in V.I.S. studying for the medicine ops. ticket. Good luck, OM.

5LC.—Les. not so active lately; did the country contest run the batteries down, eh?

5LG.—At last Leith has A.C. laid on, but at what a price! Two pet xtals have gone west, including the Bliley!! Mine would never take more than a 1,000 volts, Leith, hi! (Free ad!!)

5WG.—Yours truly bitten by the 5 MX bug! Miracle! The transmitter worked first pop! Also have the

super working on five by using H.F. osc. on 10 MX and 1st detector on five.

5NW.—No news about you, Snow; must be very QRL work, eh?

5AT.—Inactive at present, but some pirate is working plenty of nice DX for him! Don't forget to QSL, Bert!

5BK.—Jack is at national 5CK at present. Why not take a busman's holiday and let's hear you, Jack?

5HR.—Bill of Bute on again with QRP fone. They always come back, hi!!

Mr. Col. Bottrall still hard at the code. Stick to it, Col.

In conclusion, chaps, please let me have any dope about mid-months. So cheerio, and a Happy New Year.

WALLY GOVAN,
VK5WG.

The Magazine Committee have reluctantly had to accept the resignation of their Secretary Mr. Jim Marsland 3NY who has had a breakdown in health. Jim combined the jobs of Secretary and Treasurer in addition to his position as Treasurer of the Division but through his efforts to help the Magazine he has come to be regarded almost as "general helper." Every member of the Committee has had cause to thank him for unsolicited assistance and they would like to take this opportunity of thanking him for his work for "Amateur Radio."

The Committee want to welcome Mr. Thorburn Powers 3PS who is taking over the position. He is a Chartered Accountant and ideally suited to the position

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R.A.A.F. Reserve Notes

THIRD DISTRICT.

(3Z1—VK3UK.)

As the Reserve in Victoria is having a well-earned holiday, there is very little to report this month. Most of the activity of members has been directed towards Ultra High Frequency work, with some very excellent results. The reports received from the last field day, in which Reserve members took a big part, shows it to have been one of the most successful ever held, and the next one, to come off on 20th February, is being eagerly awaited.

3C4 has been down to the city twice recently, and we have had an opportunity of having a good yarn over Reserve matters.

Bill Murden, who was one of our star members a couple of years ago, was in to see 3Z1 this week, and reports that all the old Reserve members are doing very well in the Permanent Forces. VMC lost some good men in Murden, Dalziel, Amor, etc., but it must be remembered that we fulfil one of the objects of our existence when we are able to send on good men to the Permanent Air Force.

3D4 has had his big mast down recently, and availed himself of the chance to instal permanently a vertical half-wave 56 mc antenna at the top. From all reports his signals are up a couple of points as a result.

1A1 and 3Z1 are planning to go in opposite directions for the next field day on 56 mc, and to get far enough apart so that they can try to recapture the VK3 record, which was broken recently. 3Z1 has the idea tentatively in mind of going down the main Western Highway, past Colac, so that he will be in a position to try and make contact with 3B2 and 3B5, at Coleraine, as well as 3C3 and 3F9, at Callawadda/Glenorchy.

We are hoping that definite approval of the new organisation will be forthcoming by the end of the month so that a start can be made from the first week in February.

1st FEBRUARY, 1938.

Hamads

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What do you Think?

(By VK3ML.)

My personal views on the possibilities of the Ultra High Frequencies are that we shall eventually succeed in breaking down the present barriers. The secret must lie in the efficiency of the transmitting, receiving, and aerial systems. Losses, as we know them on 7 and 14 mc., are burning up a certain amount of power, but, at 56 and 112 mc., they are tenfold. Therefore, efficiency must be regarded from the insulation point of view. Bakelite, ebonite, and many other organic insulating materials are taboo at these frequencies. The order of the day is Frequentite, Steatite, DL9, and other high-grade substances employed in Eddystone precision components. Together with the silver-plated plug-in coils, efficient low-loss RF chokes and noiseless tuning condensers, the future is a rosy one. I say, yes, the U.H.F.'s will come good some day, and if there is any special component necessary to solve the problem, then EDDYSTONE will build it. Take my tip and obtain the 1938 catalogue and see for yourself the vast range of components available at very reasonable costs. Eddystone components are now available in all Capital cities, or from my address:

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